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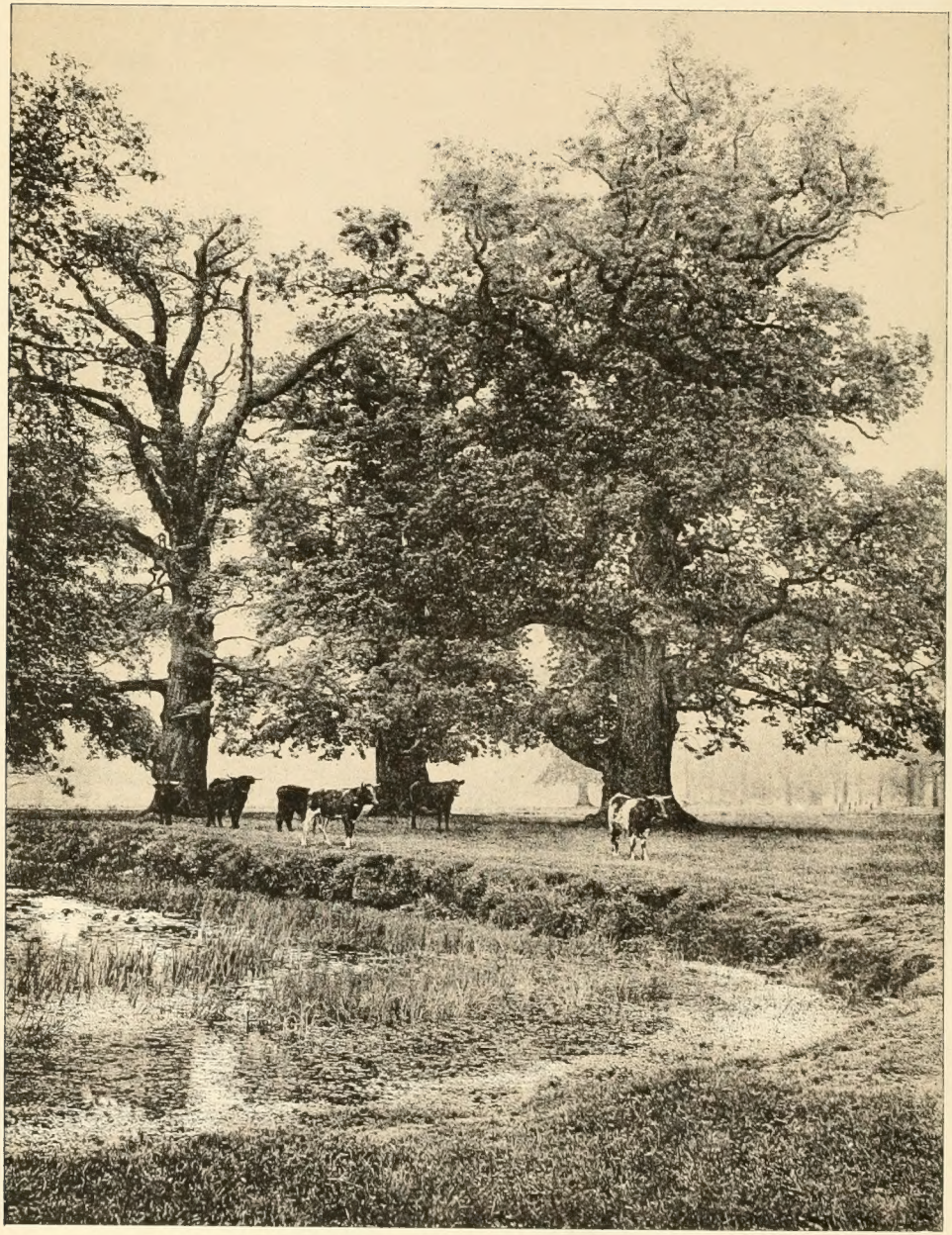
BRITISH TREES.



"THE THREE SISTERS."

Helmingham,
Suffolk.

24629

Forestry.

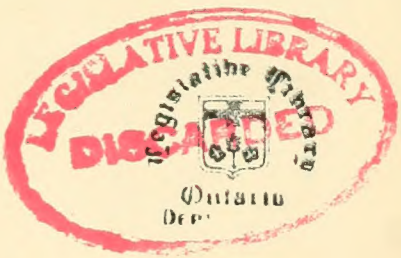
BRITISH TREES

WITH

ILLUSTRATIONS

BY

THE HON. STANHOPE TOLLEMACHE, B.A.



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PREFACE.

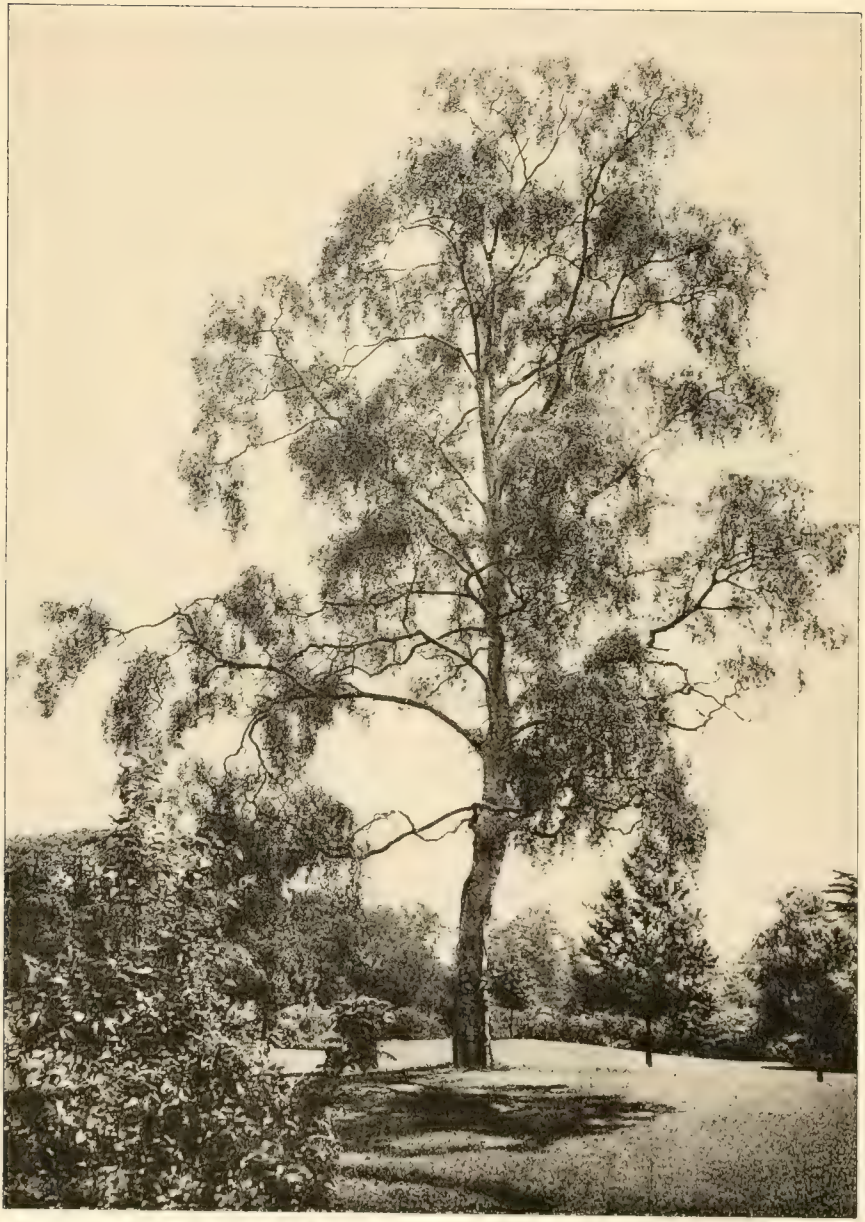
IN presenting these notes on Forest Trees, with the accompanying illustrations, there is no intention of dealing with the subject from a strictly scientific point of view. Comprehensive works of that character, by competent authorities, are in circulation, and no useful purpose would be served, therefore, by traversing over ground which is already well covered.

Our main purposes are to give a description of Forest Trees in a concise, and in what will, it is hoped, prove to be an intelligible and popular form, and also to picture, by means of photography, the actual appearance of these trees in their growth and habit. In some standard works the details are carefully defined, but there is no correspondingly good view as a whole of the specimen tree. "Yet what tree lovers want," wrote a famous American author, "is something that represents "the meaning, the character, the expression of a "tree, as a kind and as an individual." The same author suggested that the better way of realising this object was to take photographs of various

trees upon the same scale of magnitude and with the same camera. And curiously enough, although this particular chapter of "The Autocrat" was not remembered at the time, this was exactly the method adopted in preparing the materials for our publication.

Forest Trees indigenous or that have been naturalised to Great Britain are alone dealt with. The Kew standard of classification—which, as the author remarks, "represents the work of many "years, and has only been accomplished with "considerable labour,"—has been followed, the order of plants to which the tree belongs being given in capital letters, and the sub-orders in smaller capitals. With reference to the actual subjects of illustration, it need only be said that some magnificent trees have been discovered, as it were, in various parts of the country, and selected for representation as typical specimens. It is a matter of considerable difficulty, however, to photograph a tree in a way that reveals both proportion and detail, and the measure of success that has been achieved in this respect must be left to the kind judgment of the tree-lovers to whom this volume is dedicated.

S. T.



Kew,
Surrey

BIRCH.

I.

CUPULIFERÆ.

BETULEÆ.

THE BIRCH.

BETULUS.

B. alba, the common birch, is certainly one of the most ornamental of our forest trees. The silvery white bark, the long pendulous masses of spray that hang from its delicate brown branchlets, and the airiness of its foliage, give it a light and exceedingly graceful appearance.

Betuleæ are a small group of well known trees, comprising the various kinds of birch and alder.

The leaves of the birch unfold in April. They are ovate, and pointed at the ends, with the edges serrated. The male catkins show very early in the spring, generally in pairs; the females are solitary, and much later. The birch is continually unpeeling its outer bark, and this renders the tree well suited for planting in towns. In matured trees the bark on the lower part of the stem frequently becomes deeply furrowed; the foliage exudes a peculiarly sweet smell, especially in spring and after showers.

The curious growth of matted twigs, resembling

an old nest, often observable in the branches of the birch, is caused by a very minute gall, one of the genus *phytopus*.

The birch is not a long-lived tree, and seldom attains a height of more than fifty feet. It has great power of occupancy, being well able to hold its own in the densest woodland. A native of Great Britain and the Northern hemisphere, it is very hardy. Upon this fact one writer states: "In Lapland the line of the birch is barely two "thousand feet below that of eternal snow, and "eight hundred feet above that of *pinus sylvestris*. "It abounds in Russia, Sweden, and Norway, "and is also found in Iceland; in fact, its limits "in Europe may be said to be bounded only by "vegetation itself."

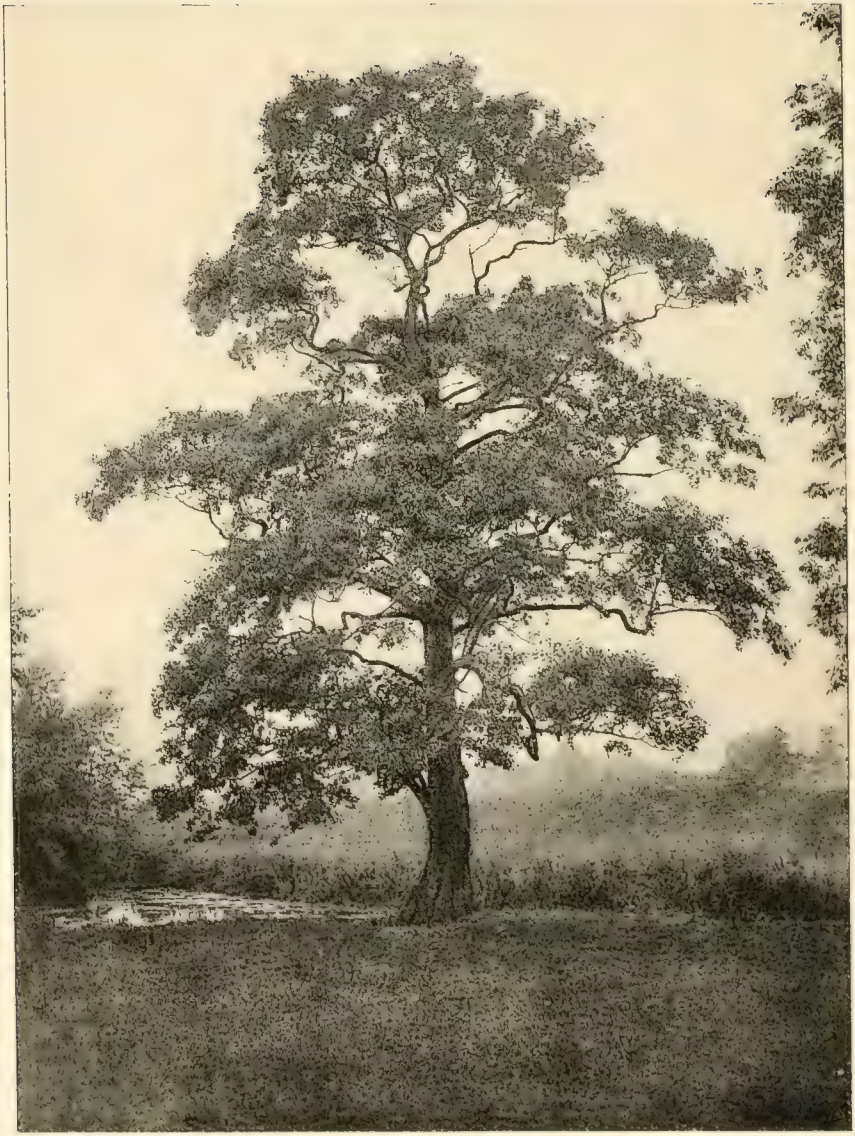
The wood, light in colour, shaded with red, is not extensively used, except by carriage builders. As coppice wood it is not so valuable as ash, hazel, or sweet chesnut. The tree is propagated by seed.

In prehistoric days it is said that "the natives "made their canoes, their ropes, and even the "roofs of their shanties, from the birch tree, and "probably civilisation was not very far advanced "before the tree was tapped, on the discovery "that its copious flow of sap formed a beverage "that had the reputation of being both refreshing "and wholesome."

The "fasces" carried by the "lictors" of ancient Rome, in front of the magistrates, are believed to have been made of birch branches. Birch is said to have been the form of decoration during Rogation week, as the holly is at Christmas.

"Sweet bird of the meadow, soft be thy rest,
Thy mother will wake thee at morn from thy nest;
She has made a soft nest, little redbreast for thee,
Of the leaves of the birch and the moss of the tree."

Leyden.



Bentley,
Suffolk.

ALDER.

II.

CUPULIFERÆ.

BETULEÆ.

THE ALDER.

ALNUS.

A. glutinosa, the common alder, is our most aquatic tree. It is not considered so attractive as the willow—the foliage is heavier, but it forms a pleasant contrast with it, and its association with our rivers and brooks has made it an almost necessary adjunct to their borders. In the *Odyssey* we read:—

> "In living rills a gushing fountain broke
> Around it and above, for ever green
> The bushy alder formed a shady screen."

Its botanical name is derived from the Celtic words, *al*, near, and *lan*, the edge of a river.

The leaves are rounded at the top, wedge-shaped at the base, slightly lobed, of a dark green on the upper surface but paler beneath, and glutinous in the young stage. From this the tree takes its specific name, *glutinosa*. The leaves expand in May and are retained until late in the season. The male catkins appear in the

autumn, and the female catkins with or shortly after the leaves.

The alder is generally seen as a shrub, and will grow vigorously even when standing in water. Planted on drained land, with room, and allowed to run up, it alters the character of its growth and takes quite a resemblance to the oak.

The alder is best propagated from seeds. The wood is naturally white, but when cut, it turns red. As coppice wood, the poles make useful hurdles, but it is most durable as piles for under-water purposes. Posts and stakes of alder are not serviceable ; they soon perish.

Indigenous to Great Britain, it has a wide geographical scope, extending over Europe, North Africa, and West and Northern Asia.

Syon,
Middlesex

HAZEL.

III.

CUPULIFERÆ.

CORYLEÆ.

THE HAZEL.

CORYLUS.

The hazel comprises an almost endless number of varieties, which are represented by the cobnut and the filbert.

C. Avellana, the common hazel, is rarely seen to attain the dimensions of a tree, but as a bush it is known to everyone. A vigorous constitution enables it to adapt itself to nearly every soil and situation, from cultivation on the lowlands to raising itself out of crevices of rocks in the hills, perhaps from a nut deposited by a dormouse or a squirrel.

The large ovate leaves of the hazel are of a dull green colour. In the autumn they turn to a rich yellow, and are retained for a considerable time after being affected by frost. The male catkins appear in twos and threes late in the year. The little crimson female flowers begin to show themselves singly very early in the spring,

giving us one of the first reminders that the severity of winter is passing away. The bark is smooth, brown, and slightly speckled. The hazel furnishes excellent under-wood; being tough and elastic it is generally used in thatching.

The hazel is a native of Great Britain, Europe, and Western Asia. Its name, *Corylus*, is said to be derived from *korys*, a helmet—this word having reference to the fact that the fruit is enwrapped in a calyx, the outer envelope of the flower. *Avellana* is believed to have been applied to the variety when it was brought to the neighbourhood of Avellino, a town in the Campania.

It is for its fruit, and as coppice wood, that the hazel is now most cultivated; but at one time it was highly prized because of its supposed magical powers as a "divining rod"—a belief of great antiquity.

The hazel provides food for several small wild animals, birds, and hundreds of insects—

> "Upon whose nutty top
> A squirrel sits, and wants no other shade,
> Than what by his own spreading tail is made,
> He culls the soundest, dext'rously picks out
> The kernels sweet and throws the shells about."
>
> *Cowley.*

Many kernels are destroyed by the larva of a weevil, *balaninus mucum*. The female weevil bores a hole in the soft immature nut, and lays

an egg in it, and the larva, when full grown, eats its way out. These diminutive beetles can be seen flying and crawling about the trees in early summer.

The subject of our illustration, *A. colurna*, stands in the grounds of His Grace the Duke of Northumberland at Syon. It is a perfectly formed tree, sixty feet in height, and is probably the most remarkable specimen of a hazel in Great Britain.

Richmond Park,
Surrey

HORNBEAMS.

IV.

CUPULIFERÆ.

CORYLEÆ.

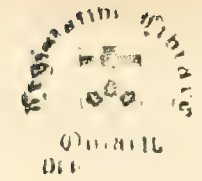
THE HORNBEAM.

CARPINUS.

Few of our indigenous trees are so little generally known as the hornbeam. Although not commonly planted as a timber tree, it is often seen growing as coppice wood. It is believed to have formed a considerable portion of our primeval forests, more particularly in the south-east and north-west.

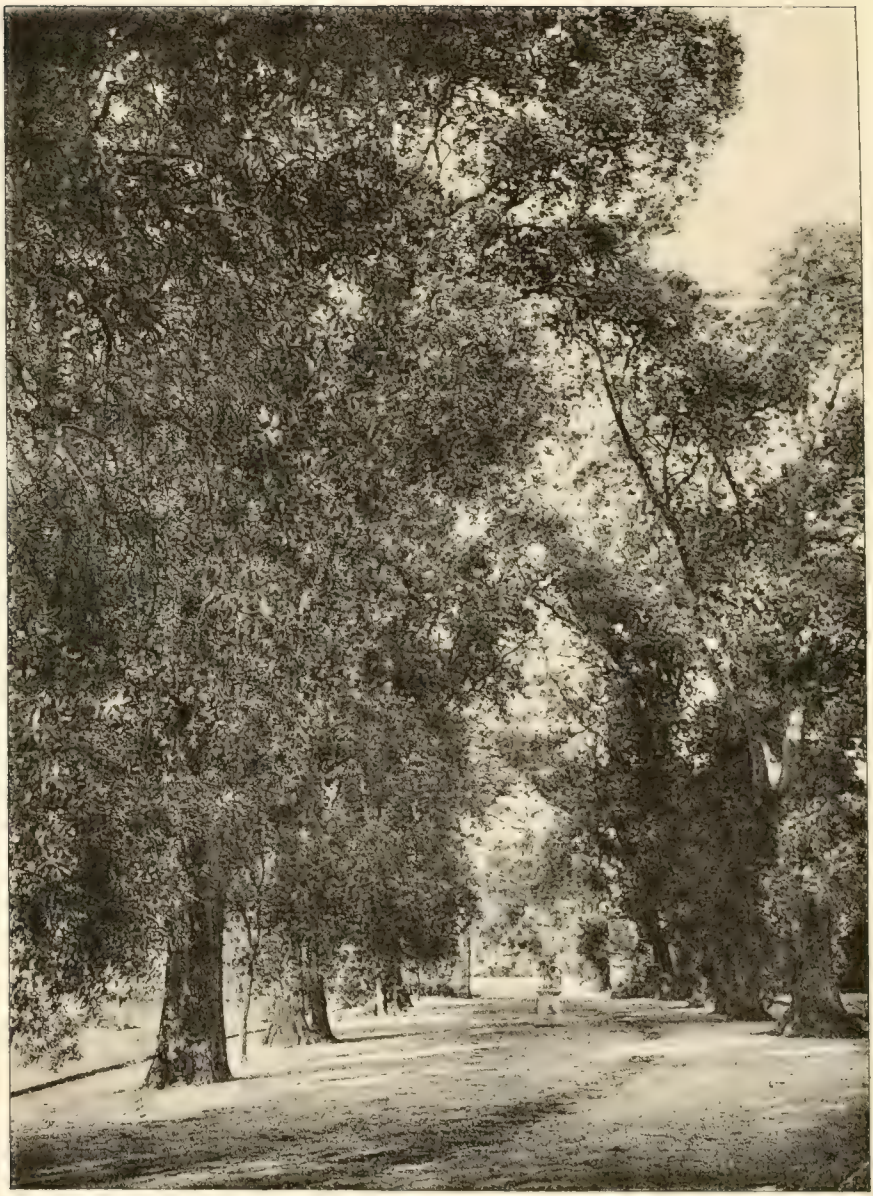
Of the same tribe as the oak, the beech, and the chesnut, it bears some resemblance to the beech and the elm, but is inferior to either.

The deep olive-green leaves are oval, with prominent veins and toothed edges. The leaves unfold in May, and the flowers appear about a month later. The bark is smooth, and of a dark lead colour. The trunk and branches have a twisted appearance, as of several limbs joined together. It is a tree of comparatively humble growth, with a close top and rather a stiff outline.



The timber is of little value, although it is very hard. An old writer, in alluding to it, says: "It waxeth so hard that the toughness of it "may be rather compared to horn than unto "wood, and therefore it was called hornbeam or "hard beam." As underwood it is equally unprofitable, as it cannot be rived for making hurdles, and is suitable only for stakes and faggot-wood.

The hornbeam thrives well in the strongest clay land. As a hedge plant or screen, it has no superior among our deciduous trees. In this particular it is better than the beech, for as the roots go down, it is less harmful to neighbouring plants. It is amenable to the pruning-knife, and the leaves are often retained till late in the winter. The nuts of the hornbeam attract that charming little visitor, the hawfinch.



"ILEX WALK.

Ham, Surrey

FULHAM OAK.

Syon,
Middlesex

TURKEY OAK.

Helmingham,
Suffolk.

Helmingham,
Suffolk.

ENGLISH OAK.

V.

CUPULIFERÆ.

QUERCINEÆ.

THE OAK.

QUERCUS.

"The Arcadians believed," we are told, "that "the oak was the first created of trees, and "that they were the first people." Be that as it may, the oak is a native of nearly every quarter of the globe, and is everywhere regarded as the natural symbol of strength and sturdiness.

At one time, the oak was most esteemed for its acorns. Forests were valued by the number of hogs they could fatten, and, as late as the time of Henry VII., nearly one-third of England is believed to have been under woodland.

Deriving its name from the Celtic, *quer*, fine, and *cuez*, a tree, the oak belongs to the large order of *Cupuliferæ*, plants that have their fruit in a husk or cup. The trees referred to under this order are all monœcious; that is, the sexes are represented in different flowers on the same plant.

Although there are upwards of a hundred kinds of oak, we can only claim one distinct species, *Q. robur*; but it is considered to surpass all others. Of this species we have two varieties

—*Q. r. pedunculata*, the common English oak, and the prevailing variety, which produces the acorns on foot-stalks, and *Q. r. sessiliflora*, which has the acorns sessile or nearly so. The branches of the pedunculate oak are said to have a disposition to spread and in the sessile oak to rise, but the reverse habits may be constantly seen; much depends on the space the trees have during growth.

The leaves of the oak generally expand in May and are retained till late in the autumn; but great variations are to be observed among oaks both in the time of coming into leaf and of casting their foliage. The catkins appear in inconspicuous clusters, soon after the leaves.

To show to advantage, an oak should stand alone, and be given full play to throw out its massive horizontal limbs. Apart from its grandeur, the oak has an intrinsic value which warrants its title of "monarch of the woods." An old oak, when denuded of its foliage, presents an attraction possessed by no other deciduous tree—

> "Let India boast her plants, nor envy we
> The weeping amber and the balmy tree,
> While by our oaks the precious loads are borne
> And realms commanded which those trees adorn."
>
> *Pope.*

The tannin contained in the bark of young oaks well repays for stripping, when it is intended to fall them. This is done in the spring, while

the sap is circulating freely. Winter fallen oak-timber has a reputation for being the best, but we believe there is no evidence to support it.

The oak now used in our buildings for wainscoting and interior work is generally the fine, straight-grained knotless kind imported from abroad. It is more reliable for its dryness, and hence less wasteful under the plane. When well-seasoned English oak can be procured, we prefer it, with the diversity of its grain, even though a joint here and there should be disposed to open a little. Many a good tree is ruined by allowing ivy to grow on it—a fact which is well expressed in the lines by Southey:—

"Its head tower'd on high, and its branches spread round
For its roots had struck deep, and its heart was sound;
The bees o'er its honey-dewed foliage play'd,
And the beasts of the forest fed under its shade.

There crept up an ivy and clung round the trunk,
It struck in its mouths and the juices it drunk;
The branches grew sickly, deprived of their food,
And the oak was no longer the pride of the wood.

The foresters saw and they gather'd around,
The roots still were fast, and the heart still was sound;
They lopt off the boughs that so beautiful spread,
But the ivy they spared on its vitals that fed.

No longer the bees o'er its honey-dews played,
Nor the beasts of the forest fed under its shade;
Lopt and mangled the trunk in its ruin is seen,
A monument now what its beauty has been."

The ivy is not uncommonly removed after the injury is done, and when it might as well, and perhaps better, have been left.

The best oaks are found in strong clay soils. Our frontispiece represents three venerable and living relics of an ancient forest. The tree in the centre of the group girths twenty-four feet three inches at five feet from the ground, and the other two are not much less. Of course it is impossible to know their age, but judging from the age, which is known, of some oaks near by, it is believed they must have been planted, or rather have planted themselves, before the Norman conquest. The oak has been spoken of as growing for three hundred years, being in maturity for three hundred years, and dying for three hundred years.

The ancient yule log was of oak, the name being derived from *Yiaoul*, the Celtic "god of fire," whose festival was kept at Christmas.

The excrescences on oak leaves and twigs, those on the latter being usually called "oak apples," are produced by the puncture and oviposition of the various kinds of gall flies, of the genus *cynips*.

The Turkey oak, *Q. cerris*, is the foreign species generally cultivated in England. A native of the south of Europe and Western Asia, it was introduced into this country about 1730.

The acorns are sessile, and in mossy cups; the leaves are more pointed than those of the English oak, and grey underneath; it comes into foliage much later.

This variety is believed to grow faster than the English oak, and no doubt it does in the first years of its life. An English oak and a Turkey oak, growing side by side in Helmingham Park, were planted together, in 1805, in commemoration of the battle of Trafalgar, and at five feet from the ground these two trees are now as nearly as possible of the same girth, namely, seven feet five inches. This seems to indicate that the English oak overhauls the Turkey oak about the end of the first century of their lives. The Turkey oak, in habit of growth, takes very much after the beech. It forms a handsome tree, but is in no way to be compared to its Western ally.

The Fulham oak, *Q. c. Fulhamensis*.—This interesting and beautiful variety is a sub-evergreen hybrid tree. It is never really destitute of leaves, the old leaves being shed in April immediately the young leaves begin to appear. In the ilex the old leaves are retained much later; until, in fact, the young leaves are fully expanded. The bark of the Fulham oak is rough, somewhat resembling *Q. suber*, the cork tree. Its history does not appear to be known; but the original tree stood at Fulham, and has only recently had

to make way for the builder. Fortunately, we came across the splendid specimen shown in our photograph, in the grounds at Syon, when taking the remarkable hazel tree there.

The Holm oak, *Q. ilex*.—Of the evergreen section, the common ilex is the only one that it has been found possible to cultivate to any extent. A native of the Mediterranean region, it appears to have been introduced into England about the middle of the Sixteenth Century. It is generally met with in ornamental grounds, is of great duration, and, although it only attains the size of a tree of the second magnitude, its abundant foliage renders it a handsome evergreen. In exposed situations, the ilex is exceedingly useful, being very hardy when once established; on quite a sandy soil or by the sea-coast it will form a compact dwarf tree.

SWEET CHESNUTS.

Shrubland, Suffolk

Rushmere,
Suffolk

SWEET CHESNUT.

VI.

CUPULIFERÆ.

QUERCINEÆ.

THE SWEET CHESNUT,

CASTANEA.

Of the same family as the oak and the beech, the chesnut is a native of South Europe, North Africa, and the Orient. Kastania, a town in Thessaly, has been referred to as the origin of its name, but it is more probable, as some writers have suggested, that the town derived its name from the tree. The term "sweet chesnut" is applied to the fruit, as distinguished from that of the horse-chesnut, which is bitter. The two trees have no relationship.

The leaves are long, elliptical, and of a bright shining green. They appear towards the end of May, and are retained till late in the autumn, when they turn a rich orange yellow. The long yellow catkins show themselves about a month after the leaves. The branches spread horizontally and bend downwards so as sometimes to sweep the ground. The girth of the stem is usually large in proportion to the height. In old trees

the trunk not uncommonly assumes a twisted appearance, with deep and wide clefts. Though it seldom arrives at the size of the oak, the chesnut is one of the most ornamental of our large-growing trees.

The fruit of the chesnut is not used in this country except in the form of being roasted or as a stuffing for turkeys.

> "While hisses on rug-hearth the pulpy pear,
> And black'ning chesnuts start and crackle there."
>
> *Milton.*

In Italy and the south of France, it is said to serve for potatoes and flour.

The chesnut prefers an open, dry subsoil. After the tree reaches an age of sixty or seventy years, the heart wood deteriorates, as a rule, but the tree will continue to live and grow for centuries. As coppice wood it grows fine poles for making hurdles, and chesnut hurdles look well; but our experience is that the hurdles of ash or willow are much more durable.

The timber of the chesnut very much resembles oak. It is often stated that the woodwork in many of our ancient buildings is chesnut, and hence it has been argued that the tree must be a native of this country. Much of the wood once supposed to be chesnut, however, has proved to be oak, generally of the sessile kind; and there is evidence to show that the chesnut could

not have been growing in sufficient quantity, in olden times, to have supplied so much timber for building purposes. Our earliest writers tell us that in their time the chesnut was by no means of common occurence, nor widely distributed. In an old tract, entitled "An Old Thrift Newly Revived," published in 1612, the writer recommends planting the chesnut, "as a kind of timber " tree, of which few grow in England, which not " only produces large and good timber, but good " fruit that poor people in time of dearth may " with a small quantity of oats or barley make " bread of," and "when you first begin to plant " it," he added, "it will grow more in one year " than an oak will do in two."

The general opinion is that the chesnut is not indigenous to Great Britain, but that it was introduced at a very early period, probably by the Romans, on account of its edible nuts. Being a tree with so much to commend it, it could hardly fail to stay with us. It is said to have been brought to Europe by the Greeks, from Asia Minor, about 500 B.C.

Stoke,
Suffolk,

BEECH.

VII.

CUPULIFERÆ.

QUERCINEÆ.

THE BEECH.

FAGUS SYLVATICA.

Formerly the nuts of the beech tree were used for food, and its specific name is derived from the word, *phago*, to eat. It has been doubted whether the beech is a true British tree, "as no prehistoric "remains of its wood can be traced;" but we have no record of its introduction, and old writers mention it as "one of the four aboriginal trees." Our species is to be found nearly all over Europe, and in Asia Minor.

It is supposed to reach its prime in about eighty years, but it continues to live to a great age. Standing alone it has usually a short stem, from which it throws up two or three vertical limbs. It forms a close rigid tree, with rather a rounded outline. The matted roots extend near the surface to a great distance; it flourishes on nearly all soils, but in very exposed situations old trees are liable to be uprooted.

The small oval leaves appear early in May, and the tree blossoms in June; the bark is of a greyish brown, and being very smooth and

thin, it presents an irresistible temptation to the rustic carver :—

> "Not a beech but bears some cypher,
> Tender word or amorous text."

The tree retains its leaves very late, and is amenable to pruning. On this account it is often planted as a fence between garden grounds. The only objection to this practice is that the tree is a bad neighbour. For this reason we prefer the hornbeam as a hedge plant; perhaps box makes a nicer fence than either.

The beech is easily propagated by its nuts. It is not a profitable timber tree. A beech can be most appreciated in spring, when the young and clear emerald-green leaves first burst out, and in the autumn, when they vary in colour from auburn brown to rich orange. With the sunlight reflected on the glazed surfaces of the foliage, the beech is a lovely object in the fall of the year.

The purple beech, *F. s. purpurea.*—The original tree of this well-known variety was found growing in a wood in Germany towards the end of the Eighteenth Century, and from it all the purple beeches are said to have been propagated. Though the stock frequently comes true to the parent, deviations have arisen. Of this we have a notable instance in the copper-coloured beech, *F. s. cuprea.*

Penley, Suffolk

HOLLY

VIII.

ILICINEÆ.

THE HOLLY.

ILEX AQUIFOLIUM.

The holly is truly described as the most beautiful of our native evergreen trees. Its deep green leaves, spinous and leathery, sometimes blotched with yellow or white, and its scarlet berries, make it a pleasing object anywhere; but it shows to most advantage, perhaps, on a bright winter's morning, among the dead brakes and leafless deciduous trees.

"And as when all the summer trees are seen
So bright and green,
The holly leaves their sober hues display
Less bright than they,
But when the bare and wintry woods we see,
What then so cheerful as the Holly Tree?"

Southey.

The young upper leaves are often entire and flat; the tree thus dispenses with its armament as protection to its growth becomes unnecessary. This habit seems to be more common in trees that are not kept trimmed. Southey makes a

happy reference to it in the poem of which one verse has already been quoted :—

"Below, a circling fence, its leaves are seen
Wrinkled and keen;
No grazing cattle through their prickly round
Can reach to wound,
But as they grow where nothing is to fear,
Smooth and unarmed the pointless leaves appear."

The white flowers of the holly, which are not conspicuous, appear in May and June. The wood is white, hard, and even-grained. When once established, holly makes a grand hedge, and not being a prey to insects, its leaves are not disfigured. The only drawback to its use for this purpose is its slow growth; but the holly is hardy and of great duration. The length of a tree's life, it may be said, is almost invariably proportionate to the rate of its growth.

Although the holly as a rule is not much more than a shrub, it will on a genial soil, and given room, grow to a tree of some thirty feet. It is a dicœcious plant, only yielding one sex on an individual tree. Indigenous to Great Britain, it is also a native of Europe and Western Asia.

The holly is believed to have been a popular emblem of good wishes from an early period. During the festival of the Saturnalia, held by the old Italian husbandmen in commemoration of the ingathering of the harvest, the holly was the

favourite material for decoration. This ancient festival was held at about the same period of the year as our Christmas, and it may be conjectured that in this, as in many other cases, the early Christians took up and assimilated a Pagan custom.

Westerfield, Suffolk

WALNUT.

IX.

JUGLANDEÆ.

THE WALNUT.

JUGLANS.

Juglans, "the nut of Jove," is cultivated in Great Britain more as an ornamental tree, and for the edible nuts it produces, than for the value of its wood. *J. regia*, the royal or common walnut, is not an indigenous tree; its natural habitat ranges from the Caucasus to the Himalayas. The date of its introduction into these islands does not appear to be known, but its susceptibility to frost, and the inclination of the fruit not to ripen as it proceeds North, rather suggests that its naturalization has not been of a very lengthened period.

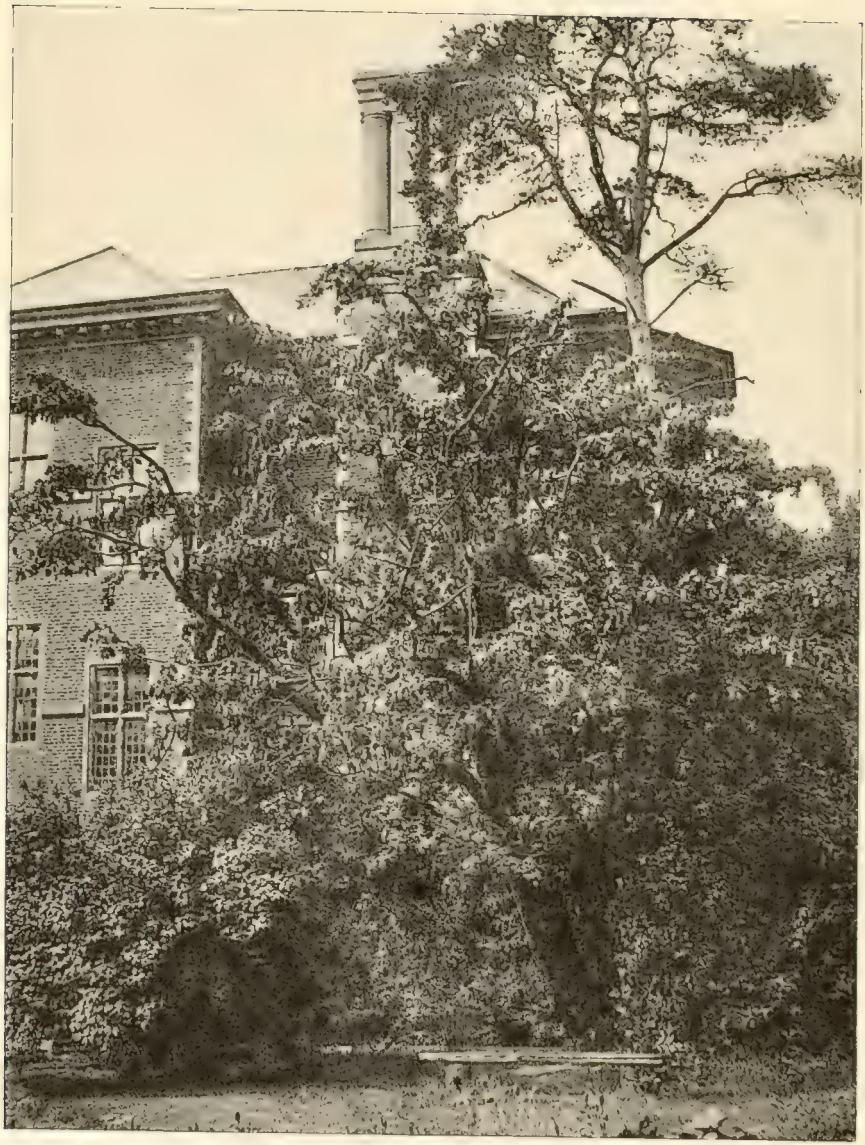
The leaves, which expand in May, are smooth and slightly serrated, generally with seven leaflets in pairs and a terminal leaflet; they are first a light bronze colour, and when fully developed, turn a light yellowish green. The tree blossoms in May, and the fruit ripens the following autumn. It is a monœcious plant producing the sexes in different flowers on the same individual. The

leaves throw out a powerful aromatic smell, especially when bruised and in hot weather.

The bark is of grey colour and smooth in the young tree and branches, but as the tree gets older, it becomes rugged. The walnut is propagated by its nuts.

Previous to the importation of mahogany, the wood was much valued for furniture. With age it is a beautifully grained dark brown, shaded with black. Easily worked and not liable to split, it takes a fine polish, and has the advantage of being light; the more ornamental pieces of its wood lie generally near the roots.

The American species, *J. nigra*, is imported for its wood, and is much larger than *J. regia*. The hickories, which are closely related to the walnut, are not much cultivated in this country. The climate is not suitable to them; still, in favourable spots, they are occasionally met with. There are two fine specimens, quite fifty feet high, growing in the grounds at Ham.



Ham,
Surrey

LABURNUM.

X.

LEGUMINOSÆ.

THE LABURNUM.

CYTISUS

This tree belongs to a large tribe of plants—comprising annuals and herbaceous flowers, shrubs and immense trees—that has long been known by the name of *Leguminosæ*, on account of the fruit being contained in pods. It is one of the most important Orders in the vegetable world, supplying food, medicine, timber, dyes, and many other products far too numerous to mention.

The laburnum is a native of the forests and mountainous parts of Central and Southern Europe, where it is said to grow spontaneously. Its botanical name is believed to be derived from Cythera, an island in the Cyclades, where one of the species was first found. The Sixteenth Century was the date of its introduction into Great Britain.

The tree is of no value for its wood, and does not in fact attain the size of a timber tree.

To the seeds, bark, and roots, highly poisonous properties are ascribed. In habit and constitution, the laburnum is quite hardy, and it forms a great adornment to our roadsides and to the margins of our plantations. It has a graceful and irregular outline, and in May and June, when the small light-green trifoliate leaves appear in contrast with large pendulous bunches of yellow flowers, it is the perfection of beauty as a flowering tree.

Kew,
Surrey

ACACIA.

XI.

LEGUMINOSÆ.

THE ACACIA.

ROBINIA.

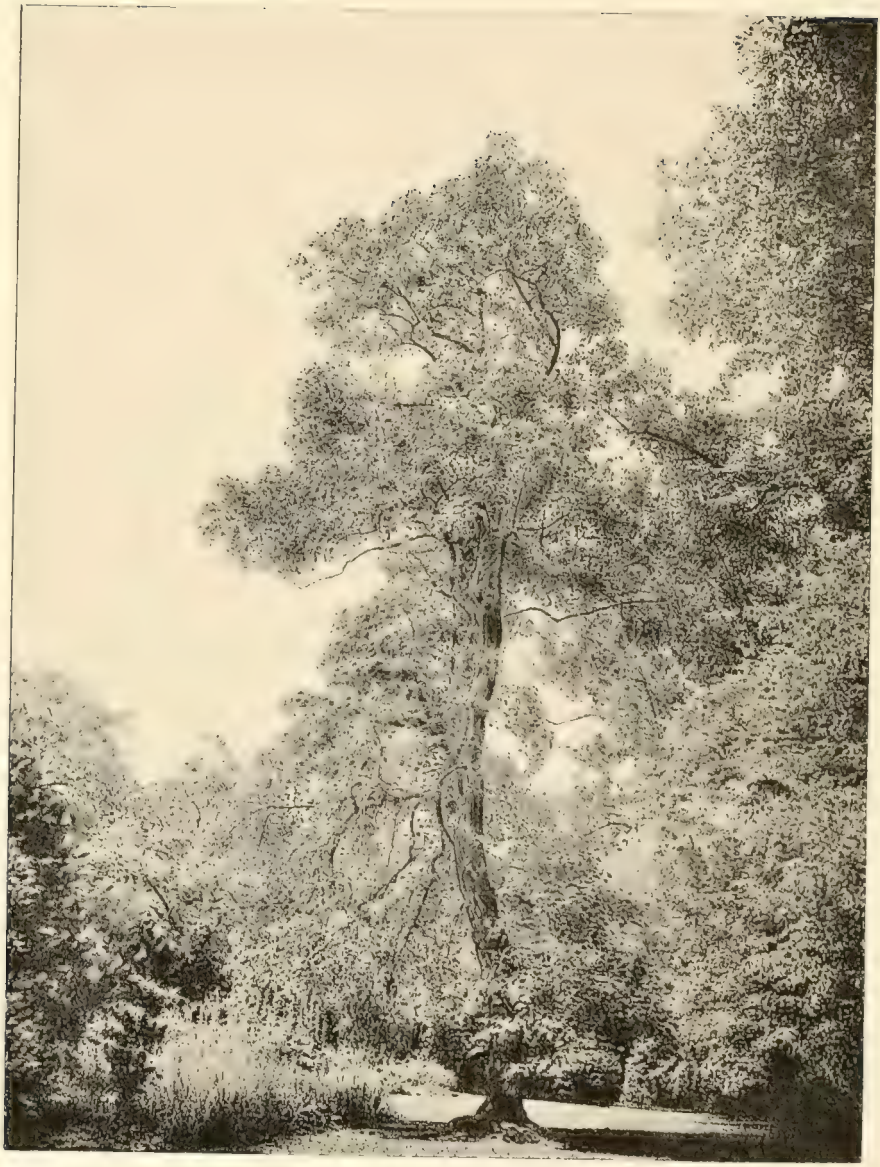
Of the same family as the laburnum, the broom, the pea and the bean, *R. pseudacacia*, our common species, is a native of the Eastern United States, where it is termed the "locust tree." Its name *Robinia* is in honour of Jean Robin, a French botanist, and once herbalist to Henry IV, who is believed to have brought it to Europe.

As an ornamental tree the acacia has been cultivated in Great Britain for about two hundred years. It is said to have been one of the first American trees introduced into this country. The characteristics of *R. pseudacacia* are pendent clusters of white, scented flowers, developing into flat pods, and what are termed pinnated leaves formed of beautifully fine and smooth leaflets in pairs, with a terminal, and with two prickles at the base. As the tree rises to maturity these prickles disappear—like the holly it throws off its armament.

The whole annual shoot of the acacia seldom ripens; hence the following year's growth generally springs from a side bud, and this makes the branchlets take a straggling order. The bark is smooth in early life, but becomes deeply furrowed as the tree grows older. The branches are of a brittle nature. Rightly described, perhaps, as "the least able of all trees "to endure the blast," it requires protection, and not having much power of occupancy, it should have plenty of room to give full justice to its growth. Its disposition is to grow erect, with a light spreading top. Propagation is by means of seed, cuttings, or from the numerous suckers.

The wood is not used in this country but is said to be hard and durable.

The constitution of the acacia commends it as a desirable tree for cultivation in sheltered situations. Notwithstanding the late appearance and early fall of its leaves, the airy spreading top, the lightness of its foliage, the prominent white blossoms, and the light brown rugged bark, combine to give it a very picturesque appearance.



TULIP. *Ham, Surrey*

XII.

MAGNOLIACEÆ.

THE TULIP.

LIRIODENDRON TULIPIFERA.

From *leiron*, a lily, and *dendron*, a tree. The flower bears some resemblance to a lily but is more like a tulip.

The order of *Magnoliaceæ*, or Magnoliads, consists of noble trees and shrubs bearing large showy flowers, and fine glossy leaves.

A native of North America and the United States, the tulip is one of our most ornamental foreign deciduous trees. It attains a considerable size, and being fairly hardy when planted in a sheltered position scarcely appears to receive the attention it deserves. Space must be allowed, for in confinement the tree will not produce flowers, and only a scanty foliage. The quaint shape of the leaves is unlike that of any other tree leaf that we know of. Large, and on appearing in May, of a deep shining green, which turns to gold in the autumn, they are hung on long and slender footstalks, and sway to and fro under the slightest breeze. When in full flower in July a tulip tree is a beautiful object.

Buckminster,
Leicestershire

ASH.

XIII.

OLEACEÆ.

THE ASH.

FRAXINUS.

There is no tree growing in the British Islands more serviceable than the ash. As a timber tree, an ash with a clean stem is quite as readily sold as an oak; and good ash poles among underwood greatly assist its disposal and price.

The order of *Oleaceæ* consists of trees and shrubs resembling jasmine-worts and having their leaves in opposite pairs. Of this, besides the ash, the olive, the privet, and the lilac are examples.

F. excelsior, our species, was probably so named from its loftiness as compared with other members of the tribe. The ash is native to Great Britain, and is very commonly distributed in many districts, particularly in some parts of the Midlands, where it has been planted almost to the exclusion of every other tree. This was no doubt due to the high estimate placed upon its market value. Ash is the wood generally used in the making of agricultural implements, carts, and machinery.

We like to see the ash planted in the hedge-

rows of pasture lands. Growing in the fences of arable fields, it has the objection of being injurious to the crops in its vicinity—in fact, more so than nearly any other tree.

The small purple-black flowers show themselves late in April; they are generally of both sexes, but sometimes of one sex only. The seeds, or "keys" as they are termed, hang in dense clusters. The leaves, consisting of from four to seven pairs of leaflets, appear a few weeks after the flowers. Their late arrival is followed by an early fall. As a writer remarks, therefore, "ash "trees should be sparingly planted around a "gentleman's residence, to avoid giving it a cold "and late appearance, at a season when all "nature should smile."

An ash tree as a rule grows to from forty to sixty feet high. The smooth greenish bark of youth becomes grey and fissured with age. It is from the grey hoariness of its bark that the ash is supposed to derive its name. It lives for several centuries, but is most profitably felled at from sixty to eighty years old. It is very hardy, not being particular as to soil. Standing alone, it forms a wide head, with large downward-spreading branches. Apart from the value of its timber, in midsummer the ash, with its easy graceful outline, and light feathery leaves, is a very decorative tree.

Ham,
Surrey

PLANE.

XIV.

PLATANEÆ.

THE PLANE.

PLATANUS.

Among our broad-leaved deciduous trees we have none which exhibit a more beautiful foliage than the plane, and yet, outside the Thames valley, it is comparatively uncommon. Perhaps the most noted exceptions are the fine group at Hawstead, near Bury St. Edmunds. However, we have much to be thankful for in the introduction of the plane, even if it were only because of its particular adaption to our smoke-laden metropolis. The name is supposed to be derived from *platys*, ample, in allusion to the shade afforded by the density and breadth of its foliage, and its wide-spreading branches.

The tree presents a free and bold outline, without the formality of the horse-chesnut or the lime. The leaves, which vary greatly in size—sometimes measuring from six to eight inches both in length and breadth—are palmated and lobed into five divisions in resemblance to the sycamore, but they are more pointed, have in colour more of the shining green of the tulip, and enjoy also the advantage of seldom being

injured by insects. The leaves break out in May, and are lost rather early in the autumn. While the foliage is young the flower-stalks appear. The little round catkins, generally from two to five in number, hang downwards on thin slender footstalks, and form quite a feature of the tree at all seasons of the year. As the seed ripens, a tuft of bristles forms at the base. The sexes are on different flowers, though both are contained in the small globular catkins.

The smooth bark, which is of a greyish colour, flakes off in large irregular patches. It is probably owing to this annual shedding of bark, and to the polished backs of the leaves being cleansed by the slightest shower, that the plane is so suitable for cultivation in our towns.

P. Occidentalis, the American species, is the one generally planted in England. *P. Orientalis*, our other species, is rarely met with; it is easily distinguished from the Western plane, the lobes of the leaves being more deeply cut. It is considered to have the weaker constitution of the two, but in a sheltered situation, and given plenty of room, it forms a grand tree, as may be observed from the subject of our photograph, which is the best specimen of the Eastern plane we have seen growing in this country. Both species appear to have been introduced about the middle of the Seventeenth Century.

Bentley,
Suffolk,

WILD CHERRY.

XV.

ROSACEÆ.

THE CHERRY.

CERASUS.

The cherry comes under the large order of *Rosaceæ*, a group of plants well known for their beauty, fragrance, and grateful products, and comprising, besides the roses, laurels, and spiræas, the apricot, the strawberry, the blackberry, and a large number of our popular plants. Whether the Latin appellation of the cherry is derived from the town in Pontus of that name, or whether the town took its name from the cherry trees growing in its neighbourhood, remains a matter of conjecture.

C. sylvestris, the wild cherry, is believed to be indigenous to the British Islands. The cherry referred to by Pliny, as having been brought to Italy by Lucullus nearly two thousand years ago, is said to have been probably *C. vulgaris*, or some of its cultivated varieties that grow in our orchards and gardens.

The cheerfulness of the early profusion of white blossoms in spring, at a time when other trees are only unfolding their buds, and the lovely foliage in

Trg
Ornamental
Dep

late autumn, when the leaves assume an infinite variety of purple, crimson and orange tints, combine to make the cherry, apart from its fruit, a most attractive tree. The flowers expand at the same time as the young leaves, and an advantage of the cherry is that it gives a display of flowers at an early age as well as at an early season. The leaves, which are serrated and drooping, change from a first tint of bronze to a bright green; the bark is a dark smooth grey, frequently encircled at intervals with thin ribs. The cherry is easily raised by suckers, layers, or from the stones of the fruit, the latter method being the most approved.

Although recognised more as an ornamental and fruit-producing tree, the cherry, when grown in a fairly good soil, yields wood that is of excellent quality—strong, close-grained, red coloured, taking a good polish, and easily worked. It is said to be much used by cabinet makers in those parts of the continent where mahogany is not imported so largely as it is into England.

Familiar as we are with the various forms in which the cherry enters into our diet, it is used still more extensively in that of our continental neighbours. We frequently hear of cherry cakes. Kirschwasser, the common spirit of the continent, is distilled from the wild cherry. Maraschino also is made from a small acid cherry which abounds in Northern Italy.

"THORNY WALK."

Helmingham, Suffolk

Helmingham,
Suffolk.

WHITE THORN.

XVI.

ROSACEÆ.

THE WHITE THORN.

CRATÆGUS OXYACANTHA.

"The hawthorn-bush with seats beneath the shade,
For talking age and whispering lovers made."

Goldsmith.

No tree is more familiar as a dwarf and a hedge plant than the white thorn. It is also known in England as the hawthorn and the May bush, from its association with the old Roman festivals that were celebrated in honour of the Goddess of Flowers. These festivals were held from April 28th to May 1st, the blossom of the white thorn being the floral emblem.

The leaves expand in April, and are from one to two inches in length, with from three to five lobes terminating in a short point. The flowers appear about a month later. The bark is a light grey, in strong contrast to the bark of the black thorn, which has its blackness strikingly brought out between the snowy flowers which show themselves before the leaves unfold. Both species belong to the extensive tribe of the roses.

The white thorn is equally attractive in early summer, when bedecked in its white and sweet-smelling blossoms, as with its red berries and in its autumn dress.

When seen in some exposed spot, with its close rigid branches and stem, the hawthorn looks a hardy little customer, impervious to the severest weather; and so it is. Its botanical name comes from the Greek word *kratos*, strength, and it has been known to live for centuries.

As a hedge plant for enclosing our fields, the white thorn has no superior. The close and prickly branches make a strong fence, and there is no better wood for faggots or mending hedges. Its value in this respect has been known for several centuries. It was first made use of in Great Britain for the protection of young plantations. Its natural suitability for fencing appears to have been recognised when the Act was passed for the "Preservation of Woods" in 1544, and an old author, in giving particulars on enclosing plantations in 1611, says this should be done "with a good ditch and quickset of white thorn." In the present day, good white thorn fences on our wood banks are rarely met with. This is generally due to their being destroyed at one period or another by rabbits.

The white thorn is linked with an important period in our national history. Its more extensive

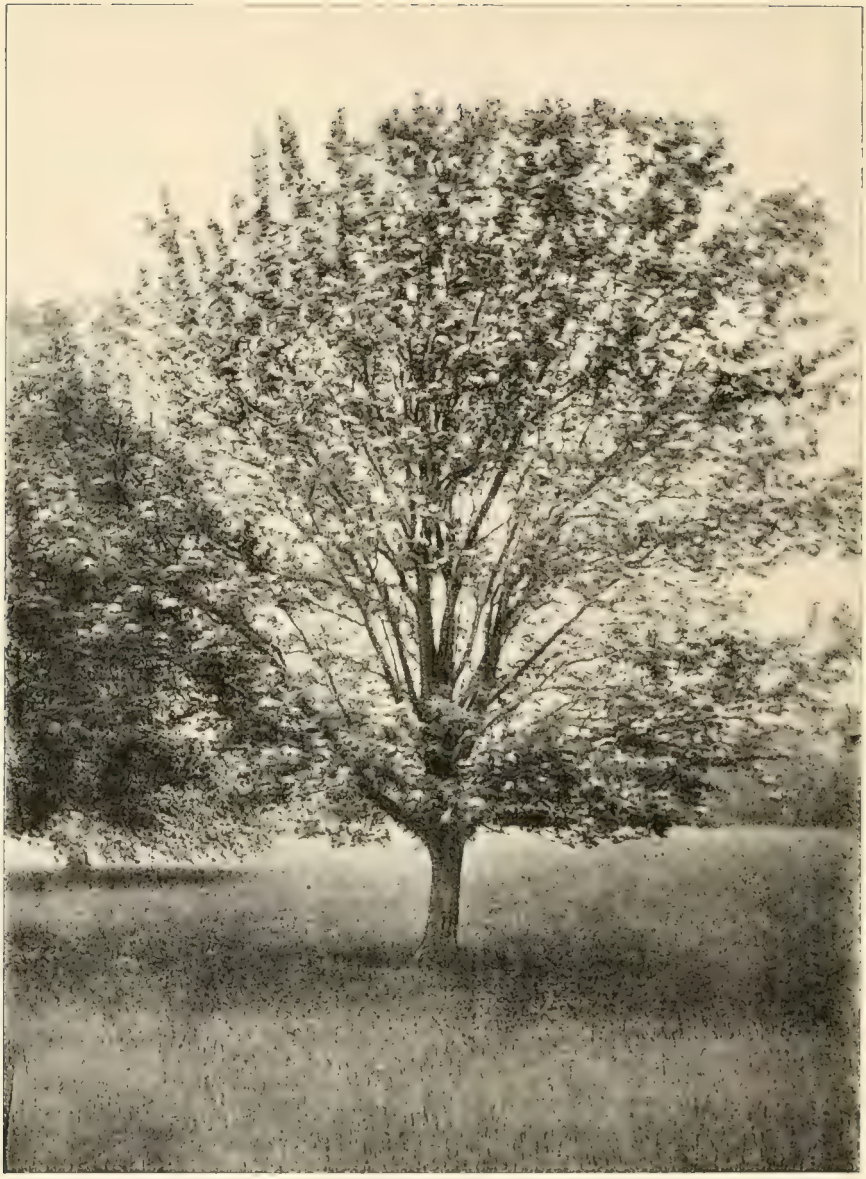
service as a fence for agricultural fields came in concurrently with the great movement in favour of enclosures which took place during the last half of the Eighteenth and the beginning of the Nineteenth Centuries.

" Before the tide of enclosure had begun to " set in " (see Scrutton, "Commons and Common Fields," page 113), "a large portion of the land " of England was in common fields. . . . . " Of the 8,500 parishes (roughly speaking) in " existence before the Reformation, nearly 4,000 " were enclosed from their open condition between " 1760 and 1844." The wholesale enclosing of agricultural land led to the introduction of the white thorn as the fencing for the purpose. Before that time, such field boundaries as there were appear to have been largely formed of balks of turf and ditches.

A native of Great Britain, there are several varieties of the white thorn. *C. o. præcox*, the early flowering or Glastonbury thorn, is reputed to have come into leaf and blossomed in favourable winters at Christmas. The most familiar varieties are the double-blossom white and the double and single scarlet. The white thorn is propagated from its berries or hawes and from cuttings.

Rushmere,
Suffolk.

WHITE BEAM.



Rushmere,
Suffolk.

MOUNTAIN ASH.

XVII.

ROSACEÆ.

SORBUS.

THE MOUNTAIN ASH.

PYRUS AUCUPARIA.

A native of the Northern Hemisphere, this tree, as its name suggests, is more generally found in hilly districts. It revels in the loose soil of an open and moist situation on mountainous slopes, and will grow freely among bleak and rocky crags, at a great altitude, where other trees would perish:—

> "How clung the rowan to the rock
> And through the foliage showed his head
> With narrow leaves and berries red."

Its winged leaves, with pairs of serrated oblong leaflets, are its only form of resemblance to the common ash, to which it is of course no relation. Like many small trees, it grows rapidly for the first few years; then the top begins to spread, further upward growth becomes very slow, and a height of more than about twenty feet is rarely

attained. It comes into leaf in May, and flowers a few weeks later.

The wood of the mountain ash is not of much value. As an ornamental tree, its loose branching head, its tender leaves, and its large white blossoms, developing into bunches of red berries, make it a charming little object. A further advantage that it possesses is the attraction of its berries to our song birds. It is no doubt on this account that it received its botanic name, *aucuparia*, *auceps* being the Latin word for a fowler.

The sub-genus *Sorbus*, to which it belongs, comprises a small group of trees, and also includes the white beam tree and the service tree. A distinctive feature is that they exhibit small individual flowers crowded into nearly flat corymbs of white blossoms. The white beam tree, *P. aria*, is the other indigenous species of this section. It closely resembles the mountain ash, but may be readily recognised by its leaves, which are ovate and entire, and covered beneath with white down, and by the larger size of its berries.

The mountain ash is known as the Rowan tree in Scotland, and the Witchen tree in Wales. Formerly it was held in great reverence as a protection against witchcraft.

Bushey Park,
Middlesex

CHESNUT AVENUE

Westerfield,
Suffolk

HORSE CHESNUT.

XVIII.

SAPINDACEÆ.

THE HORSE-CHESNUT.

ÆSCULUS.

In floral beauty, luxuriance of foliage, and dimensions, we have no tree equal to *Æ. hippocastanum*, the common horse-chesnut. From its native home in the mountains of South-eastern Europe, it was brought into this country about the middle of the Sixteenth Century. Being very hardy, it appears soon to have attracted considerable attention, and to have been extensively grown as an ornamental tree, for it is said to have been comparatively common in avenues and pleasure grounds within less than two hundred years from the date of its introduction.

The young tree presents rather a formal appearance, the branches not being numerous, and taking a stiff and slightly vertical course. With age and increased weight, however, and greater length of lateral branches—the lower being the longest, and these being borne down almost to a right angle from the trunk, and bending outwards in graceful curves—the general appearance of the tree is greatly improved.

About the end of March the flower buds swell, and in April the green slender leaves begin to

Virginia Library

appear. The leaves are digitated, *i.e.*, shaped like an open hand, and there are seven on a petiole, some of them as much as a foot long. In May, the flowers, which are white, variegated with red and yellow, begin to expand, and form a magnificent spectacle when in full development, the tree being then seen "in all the richness of its "heavy velvet drapery, embroidered over with "millions of silver flowers." Conspicuous blossoms are so rarely met with in our English trees, that we can all the more appreciate the horse-chesnut, the laburnum, and the acacia.

The rapid effects of climatic variations upon plant life are strikingly exemplified in the case of the horse-chesnut. As Mr. Ruskin remarks:— "A group of trees changes the colour of its "leafage from week to week and its position "from day to day: it is sometimes languid with "heat, and sometimes heavy with rain."

The wood of the horse-chesnut is white and soft, and of no value as timber. The tree does not often attain a height of more than seventy or eighty feet, and seldom an age of more than two hundred years.

Æ. h. rubicunda, the scarlet-flowering horse-chesnut, is the most ornamental and generally cultivated variety, but although it is a showy dwarf tree, it bears no comparison with its white flowering relative.

Helmingham
Suffolk

MAPLE

Westerfield,
Suffolk

SYCAMORE.

XIX.

SAPINDACEÆ.

THE SYCAMORE.

ACER PSEUDO-PLATANUS.

The hardy constitution of the sycamore, or great maple, the compact nature of its growth, and the density of its foliage, have made it a popular tree for cultivation in all parts of Great Britain. We have few deciduous trees more suited for growing singly in exposed situations. In congenial soil, it will attain a height of about fifty feet, and, given room, it throws out horizontal branches to a considerable distance, affording an impenetrable shade. It grows fairly rapidly, and the ordinary duration of its life is said to be from one hundred and fifty to two hundred and fifty years.

The leaves of the sycamore are palmate, and divided into five unequal lobes, bearing a close resemblance in form to those of the plane. They unfold at the end of April, and beginning of May. The green pendulous flowers, producing

both sexes, and from which the "keys" are developed, appear soon after the leaves, in the axils of the leaf stalks. The bark is of a smooth ash grey, and in old trees is disposed to crack and leave large seams. Its young red leaf stalks, and its early bright green foliage, are particularly attractive, but the glutinous substance that forms on its leaves, and collects all the impurities of the air, soon gives the tree a dusty appearance. In the early autumn, too, the leaves become blotched by a parasitic fungus.

Acer signifies "vigorous," or "sharp," and the word is said to have been applied to this genus on account of the wood having been much sought after for manufacturing into heads of pikes and lances. Now-a-days, the sycamore is not considered to be of much value for its timber.

The order of *Sapindaceæ*, or soap-worts, is composed of a great variety of species, but one general characteristic is that the embryo is either much curved or spirally twisted.

A native of Central Europe and Western Asia, the sycamore is believed to have been introduced into this country about 1550. The circumstance of its ripening its seed in England has led some authors to think it might be indigenous in some parts, but it is argued with equal force, by other writers, that the fact of its propagating itself readily by seed is evidence against its nativity,

since in that case it would have been more widely distributed than it is.

The Norway maple, *A. platanoides*, was introduced within the Eighteenth Century. The foliage of this variety is not so massive as that of the sycamore. It grows more rapidly at first, but does not attain the same size.

The common maple, *A. campestre*, is the only truly-acknowledged indigenous *Acer* in Great Britain. It takes the same shape of growth as the sycamore in a more diminutive form, seldom growing to more than twenty or twenty-five feet high, and with its leaves and flowers all smaller in proportion. Two characteristic distinctions are that the flowers are partly erect, whereas in the sycamore they are drooping, and that the bark of the young growth, at first light brown and rugged, becomes smooth and a dark mottled brown as the tree grows older.

When it is not interfered with, the common maple is a very picturesque object. We have no tree that in colouring surpasses the autumn tint of its dying leaves. It is not found growing as a tree so extensively as the sycamore, but is very familiar to us in our hedgerows, and as coppice wood. It makes good hurdles and stakes. Although it does not come to sufficient size for large timbers, maple wood is hard, and being beautifully veined and susceptible to a high

polish, is well suited for making furniture. We may suppose that it was much esteemed by the ancients. Virgil writes—

> "A maple throne raised higher than the ground
> Received the Trojan chief."

There are quite twenty species and varieties of the maple growing in England, but our present subject and the two previously noticed are those most generally met with.

Stoke,
Suffolk.

SALLOW.

Teddington Weir,
Middlesex

WEEPING WILLOW.

Ham,
Surrey

WILLOW.

XX.

SALICINEÆ.

THE WILLOW.

SALIX.

Nearly a hundred species and varieties of the willow are grown in England, ranging in size from large trees such as the white willow, *S. alba*, which will attain a height of some eighty feet, to the diminutive "least willow," *S. herbacea*, which rises but a few inches. However, it is our province to deal with the trees only, and of these the white or Huntingdon willow is the most generally cultivated.

The white willow is a native of England, Europe, Asia, and North Africa. Under favourable conditions, in a moist loam, it forms a wide girth, with a well-proportioned head, and with its olive green flexible twigs, and long thin leaves, silvery and tapering, it produces a charming effect, and is conspicuous from a long distance.

The willow, like the poplar, is rapid in its growth, but the timber is better and harder than that of the poplar. For good clean-stemmed trees

the best buyers—and we have sold them many willows—are the cricket bat manufacturers. When grown for this purpose, the young trees require attention during the first few years after planting, and the little branchlets should be rubbed off as soon as they appear. Pollarding a willow destroys it for timber; it enables the wet to draw in, and renders the heart unsound. It is not advisable to cut large limbs off a willow tree, for the wound will not heal.

The willow produces only one sex on an individual plant. It is easily propagated by cutting two or three-year-old branches from a pollard and inserting them in the ground, first making a hole with a "pole pitch." Plunging them directly into the ground is liable to make the bark sliver, and hence to kill the branch. The willow produces the best of poles as coppice wood, when planted in a moist situation, but it is not such an aquatic tree as the alder, for it will not thrive when continually submerged in water above its roots.

Our other most prominent tree is the crack willow, *S. fragilis*, which is considered quite equal to the white willow. There are certain distinctive points of difference between the two. The leaves of the white willow are covered beneath with a white silky down, whereas in the crack willow the leaves are smooth on both sides. The branches of the crack willow, too, are said to be more

inclined to spread than those of the white willow ; but to the botanist such a characteristic would have no significance, and we do not think there is much in it. Both kinds produce their leaves and flowers simultaneously in May. A well-known variety of the crack willow is the Bedford willow *S. f. Russelliana*.

The weeping willow, *S. Babylonica*, is a beautiful exotic species. A native of Japan, it was introduced into this country about a hundred and fifty years ago. It does not often attain a height of more than about twenty or twenty-five feet. The leaves and green yellow flowers appear in May. It is only for its ornamental effect that it is cultivated; the timber is valueless. The prominent position of the little subject of our photograph has probably made it familiar to many river Thames boating people. Its *confrère* the crack willow, which we have selected as our specimen of the larger species, grows opposite to it on the other side of the river.

The weeping willow is frequently planted in burial grounds in the East, and in contrast to the gloomy shade of the cypress or the yew, its tearful expression is described rather as "conveying " a picture of the grief felt for the loss of the " departed than of the darkness of the grave."

The goat sallow, *S. caprea*.—This familiar variety, which we see flourishing in our dry woods

and hedgerows, grows to a small tree only, but it seems to thrive on all soils and in every situation. The leaves of the sallow are short, and a round oval, and, unlike the willow but like the osier, the catkins appear before the leaves. It makes excellent coppice wood. The word sallow is said to come to us from the Anglo-Saxons and to signify a plant suitable for "withes" or "ties." The flexible character of its stems, and perhaps more particularly those of *S. viminalis*, the common osier, make them especially useful for basket work. It is one of the earliest flowering of our hardy shrubs. The large white downy catkins, which burst out at the beginning of April, are amongst the first of our wild blossoms to herald the approach of Spring.

In early times the branches of the sallow were in much request on the approach of Palm Sunday. As the palm itself is a tropical plant and was therefore not obtainable, the golden heads of the goat sallow were adopted as the best substitute—

> "In Rome, upon Palm Sunday,
> They bear true palms;
> The cardinals bow reverently,
> And sing old psalms.
> Elsewhere those psalms are sung
> Beneath the olive branches;
> The holly-bough supplies their place
> Amid the avalanches."

Harold Wood,
Essex.

LOMBARDY POPLARS.

Kew,
Surrey

WHITE POPLAR.

Ipswich
Suffolk

BLACK POPLAR.

XXI.

SALICINEÆ.

THE POPLAR.

POPULUS.

The white poplar, *P. alba*, the black poplar, *P. nigra*, and the asp, *P. tremula*, are all believed to be indigenous to this country. "Some derive the "word *populus*," it is said, "from *paipallo*, to "vibrate or shake; others suppose that the tree "obtained its name from having been used in "ancient times to decorate the public places in "Rome, where it was called *arbor populi*, or the "tree of the people."

Like its ally the willow, the poplar is a diœcious plant, producing only one sex on an individual tree; but in the poplar the leaves are wide and short, whereas in the willow they are long and narrow. The bark of the poplar, too,—except that of the Lombardy poplar and of some old black poplars—is inclined to be smooth, while the bark of the willow is rough.

The leaves of the poplar are triangular. They

expand in May, and are retained till late in the autumn, when they turn to a lemon yellow colour. The male catkins, which are very large and of a purplish red, appear about the end of March. Owing to their long and thin footstalks, the pale green, shining leaves of the poplar become agitated by the slightest breeze—a feature still more observable in the asp, on which the footstalks of the leaves are flattened.

> "When Zephyrs wake,
> The aspen's trembling leaves must shake."

In the white poplar, the leaves are lobed and covered with a white down underneath. As the tree grows up, the bark on the upper portion of the stem and branches becomes a greyish white. The leaves of the black poplar are not lobed; the edges are serrated, they are smooth on both sides and of a paler green beneath. The black poplar is the more common of the two, and it produces the best timber, which would be more extensively used for rough boarding if it were not for the large importations of cheap foreign deal. It is very adaptable for boards on which wheelbarrows are run, the tough nature of the wood rendering it less liable to splinter than deal. In point of fact, the cost of falling and sawing is as much as poplar timber is worth in the present day, unless it lies very handy. The timber of the asp is comparatively worthless.

The poplar is generally propagated by cuttings, or from suckers, which the asp in particular throws up in abundance. They grow freely in woods after the underwood has been fallen, and die down in a few years as the surrounding coppice wood rises.

Like most rapid-growing trees, the poplar has a brief duration of life. Where trees are required in a short time, there is probably no tree that will serve the purpose better than the poplar.

In early summer, the young leaves, with their fresh white down, give the white poplar a particularly bright appearance, and one does occasionally meet with a handsome specimen of the black poplar, like the subject of our photograph; but frequently the poplar is rather a stiff-looking tree, thinly clothed, and perhaps devoid of branches for twenty or thirty feet from its base. The not uncommon practice of cropping the stem, besides disfiguring the tree, is of course harmful to it. Through the cells of their leaves, plants take in and digest the carbonic acid gas which is so essential to their nourishment.

Of the foreign poplars cultivated in England, the Lombardy poplar, *P. fastigiata*, a variety of the black poplar, is the most familiar. It is easily distinguishable by its cypress-like growth and by the roughness of its bark. On the banks of the

river Po, it is said to grow naturally. Introduced into this country about 1750, no tree that we have attains a greater height in the first twenty years of its growth. Its endurance of smoke, and the small compass it requires, peculiarly commend it for planting in the gardens of our towns and suburbs.

Bushey Park,
Middlesex

LIME AVENUE

Rushmere,
Suffolk.

LIME.

XXII.

TILIACEÆ.

THE LIME.

TILIA.

Though not believed to be a native tree, we have sufficient evidence to show that the common lime, *T. Europæa*, has been an inhabitant of Great Britain from a very distant period. The Romans called the lime, *tilia;* in Dutch it is called *linden.* The modern word "lime" belongs properly to the sweet lime, a near relative to the lemon, and is said to be a corruption of "line."

The leaves, which are heart-shaped, smooth, serrated, and sharply pointed at the ends, expand in May, and the pale yellowish white flower clusters late in June. The lime thrives well on either heavy or light soil. It grows up with a straight stem to from sixty to ninety feet, with a smooth bark. The soft, pale green leaves, which take a pendent position, give it a light appearance, and it forms a nicely balanced tree; but, as one writer observes, "It is without those breaks and

"hollows which the foliage of the most picturesque "trees presents, and which is always beautiful." The leaves turn yellow in the autumn, and, commencing to fall early, they fall rapidly.

The timber of the lime is of no value. The seed seldom ripens, but the tree is easily propagated by layers.

The flowers give out a delicious smell, especially in hot weather, to a considerable distance, and are a great attraction to honey bees. The pale-coloured honey made from the lime is considered to be of excellent quality. Travellers relate that the famous Kowno honey—Kowno being a town on the river Niemen—is gathered entirely from the forests of lime trees in the neighbourhood.

Another recommendation of the lime tree is its endurance to smoke, and submission to the shears, which have made it a favourite for planting in town gardens. The lime trees in St. James's Park are said to have been planted at Evelyn's suggestion about 1660; he had great admiration for—

> "The stately lime, smooth, gentle, straight and fair,
> With which no other Dryad can compare,
> With verdant locks and fragrant blossoms deck't,
> Does a large, even, oderate shade project."

Helmingham,
Suffolk

WYCH ELM.

Helmingham,
Suffolk

ENGLISH ELM.

XXIII.

URTICACEÆ.

THE ELM.

ULMUS.

The order of *Urticaceæ*, or nettle-worts, comprises, besides the elm, "plants of little beauty," among them being the stinging nettle, which few people could have associated with such a majestic tree. Comparatively small leaves, delicate twiglets graduating into mighty arms, and a dark grey rugged bark, are the characteristics of the elm. Familiar to everyone, it was well known to the ancient Greeks, for Pliny tells us that they had two distinct kinds, one inhabiting the mountains and the other the plains, and these are the two prevailing species in Great Britain.

The elm of the plain, *U. campestris*, the common English elm, is a native of North America and Siberia. Although there is no record of the period of introduction, it has been probably planted in England from the time of the Romans.

U. campestris is frequently met with in our hedgerows. The little red-purple flowers, which

produce both sexes, open in March. The leaves, which are oval, rough, and harsh above, and rather downy beneath, with toothed edges, expand long after the flowers. The seeds seldom ripen in this country, and this is one circumstance that suggests an exotic origin. The tree throws up an abundance of suckers, however, from which it is easily propagated.

The timber is dark and hard, and before being used, requires well seasoning, otherwise it is much given to warp. The naves of wheels are commonly made of *U. campestris*, hence it is often called the "nave elm" by country wheelwrights and woodmen.

The Cornish elm, *U. c. cornubiensis*, is a good variety of the common elm that we have planted. It is a lofty growing tree with small deeply veined leaves.

U. montana, the wych elm, is believed to be indigenous to Scotland and the North of England. The branches are more spreading, the leaves are much larger, and it comes into foliage earlier than *U. campestris;* and the bark is of a lighter hue. The flowers appear in large hoplike clusters —hence the name of the "hop elm," which has been given to it in some counties. The tree throws up no suckers, but it produces seed freely. In contrast with the upright growth of *U. campestris*, the wych elm forms a large spreading tree,

not so high as its congener, but quite as wide in the girth. Of the several varieties, perhaps one of the best is the Huntingdon elm, *U. m. glabra*—a smooth-leaved, fast growing tree.

There are many beautiful avenues of elms in England, and it is said that about forty places mentioned in Domesday Book take their names from the elm, *e.g.* Barn Elms, Nine Elms, &c.

Ancient writers often mention the elm tree, which, in common with other trees that did not produce fruit fit for human food, was considered most appropriate for funereal purposes. Homer alludes to this in the "Iliad," when he tells us that Achilles raised a monument to the father of Andromache in the midst of a grove of elms—

> "Jove's sylvan daughters bade these elms bestow,
> A barren shade and in his honour grow."

Scores of elms have been killed of late years, around Ham, by the elm beetle, *Scolytus destructor*. It appears to have a preference for decaying trees, but its attacks are by no means confined to them. It is a small brown beetle, very like but larger than *S. pruni*, which injures apple trees. Unfortunately forest insects are difficult and costly to cope with.

CONIFERÆ.

So much confusion exists among our nurserymen and foresters with respect to the Order of Conifers, that the authorised list from Kew was much needed. As Sir Joseph Hooker remarks, "British cultivators alone persist in referring the "Silver Firs to *Picea*, and the Spruces to *Abies*, a "practice long abandoned on the Continent, "and which has not been adopted in America. "Throughout North America, which is the head-"quarters of all three *genera*, a Pine is never "called a Fir, nor a Fir a Spruce, nor a Spruce a "Pine."

Several members of the Pine and Silver Fir tribes, which are met with in favoured situations in this country, are not noticed in the following pages. As with the deciduous trees, our subjects are confined to those in general cultivation in Great Britain.

Buckminster,
Leicestershire

CEMBRIAN PINE.

BHOTAN PINE

Kew
Survey

Kew,
Surrey

WEYMOUTH PINE.

Kesgrave,
Suffolk

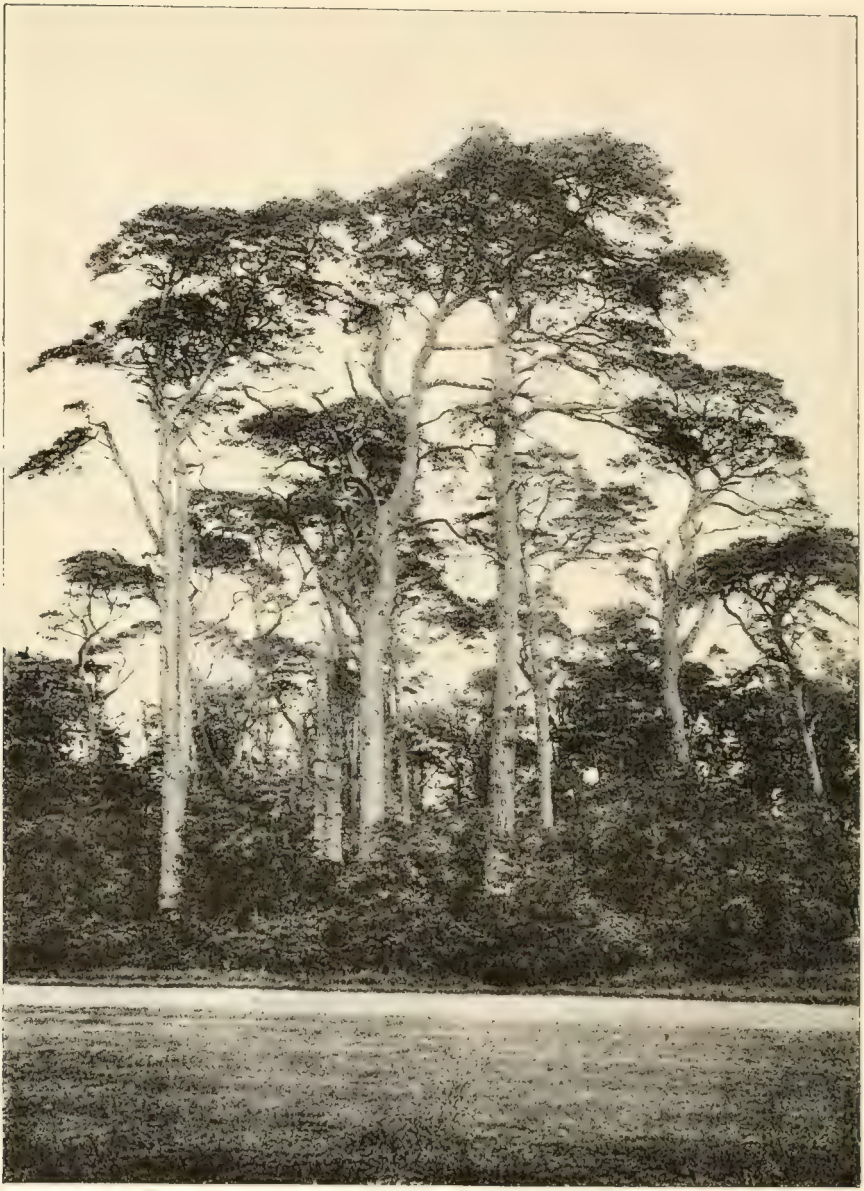
AUSTRIAN PINE.

Kew, Surrey

CORSICAN PINE.

Kew,
Surrey

CLUSTER PINE.



Ham,
Surrey

SCOTCH PINES

XXIV.

ABIETINEÆ.

THE PINE.

PINUS.

The Scotch pine, *P. sylvestris*, is the only member of the tribe with any pretensions to be a representative of Great Britain. No other pine, excepting the pinaster, was known to this country before the Eighteenth Century.

The long, thin, needle-shaped leaves, varying in number from two to five, and enclosed at the base in a sheath, are one of the chief features of the pine. It flowers in May and June, producing the sexes in different flowers on an individual tree. Some of the cones are retained long after shedding their seed; we may then see them in three different stages at one time, on the same tree.

The Scotch pine is certainly one of the most important of the group. Few trees yield so many useful elements, of which tar, turpentine, and deal are the principal. In character it is

the very opposite to our wide-stemmed, heavily branched, broad-leaved, deciduous trees. Dwarfed and crowded together in belts as we often see Scotch pines, they look wretched; but old and well grown trees, with the sun setting on their red and mottled stems and the blue haze of their foliage, are magnificent objects.

> "That pine of mountain race,
> The fir, the Scotch fir, never out of place."
>
> *Churchill.*

A fertile soil is not necessarily most congenial to the pine; frequently it appears to grow more freely in dry gravelly soil. Most of our red pine timber is drawn from Russia, Poland, and North Germany, and is known in commerce under the name of its port of shipment—Riga, Memel, Danzig, Stettin, &c. "The various kinds of "wood so denominated," it is explained in a work of reference, "are not botanically different "species, but the timber of the same tree, grown "and shipped from different districts. Broadly "speaking, all the red and yellow timber coming "from the Baltic ports is really the wood of "*P. sylvestris*, whilst what is known as white "deal is that of the common spruce, *Picea* "*excelsa*."

The only red pine timber that can fairly rival the best Scotch pine exported from Memel is the pitch pine, *P. palustris*, of the Southern States

of America. This wood is deservedly much in favour. The tree does not flourish in our climate; in fact, the only one we know of in England is the miserable specimen at Kew. Judging from the bright appearance of its long green leaves in threes, as here seen, and from the enormous logs, sometimes exceeding sixty feet in length and eighteen inches square, that come to this country, *P. palustris* must on its native ground be a grand tree.

P. pinaster is a native of the Mediterranean region, and was introduced about 1600. Like the Scotch pine, its leaves are in pairs, but they are longer and of a paler green. The large nut-brown cones are produced in clusters; hence its name, the "cluster pine." As the male catkins drop off, they leave a bare space, which makes the foliage look patchy. The bark is rough and the timber is of no value. The cluster pine is not so picturesque as the Scotch pine, but is very useful from its being able to flourish in sandy soils and under the sea breeze —situations such as hardly any other tree could exist in.

The Corsican pine, *P. laricio*, is a very rapid grower, and quite inured to our climate. Its leaves are in twos, long, and of a dark green; the bark is thick and rough. Indigenous to Southern Europe, and the Levant, it was brought to this

country about the middle of the Eighteenth Century.

The black pine of Austria, *P. l. Austriaca*, grows vigorously in this country and is extensively cultivated. It was introduced about 1830. The leaves of the Austrian pine are shorter, more rigid, and of a darker green, and it forms a closer tree, and is less lofty, than the Corsican pine.

The Weymouth pine, *P. strobus*, began to be grown in England at the beginning of the Eighteenth Century. Its slender leaves, produced in fives, are of a light bluish green. A native of Canada and North-Eastern America, the wood of *P. strobus* is much used in commerce, under the name of "white pine," for floor boards and inside work, its soft and even grain rendering it particularly adaptable for such purposes. It was at one time generally used for ships' masts and spars, but in this respect the Douglas spruce has superseded it.

The Bhotan pine, *P. excelsa*, a native of the Himalayas and introduced about 1830, is closely related to *P. strobus*. Its cones are larger, its leaves longer, and the branches more drooping than in the Weymouth pine, and being equally hardy and more ornamental, it is far more extensively grown in this country.

P. cembra, the "Stone pine" of Central Europe

and Siberia, is an erect, close growing pyramidal tree, with a rich dark green foliage. The leaves, which are produced in fives, have a beautiful silvery lining. This variety is slow in growth, but is said to attain a height of a hundred feet or more. We have not seen any in this country exceeding more than about thirty feet, but the tree has only been with us about a century.

Bentley,
Suffolk

PINSAPO.

Legislative Library
Ontario
Dep

Shrubland,
Suffolk

NORDMANN'S FIR.

Buckminster,
Leicestershire

NOBLE FIR.

Ufford.
Suffolk

COMMON SILVER FIR.

XXV.

ABIETINEÆ.

THE SILVER FIR.

ABIES.

The fir is not extensively cultivated in Great Britain, although the common species, *A. pectinata*, was introduced at the beginning of the Seventeenth Century, or much earlier than most of our foreign conifers. Frequently confused with the spruces, the two species are rather widely differentiated. The cones of the fir are erect, cylindrical, and deciduous; those of the spruce are pendent, persistent, and pointed. The white silvery lines, running on each side of the mid-rib on the under-side of the leaves of the fir, are absent in the spruce. The outline of the fir has not the easy, waving disposition of the spruce; there is a sort of general stiff formality about the whole tree, though the colour of the foliage is exceedingly rich. The fir is more delicate in our variable climate than the spruce, but is less particular with regard to soil. One point of resemblance is that

the leaves are solitary in both. Very little is known of the wood of the fir in this country, where the tree is only planted for ornamental effect, but it has not a good reputation.

A. nobilis is perhaps the most lovely of the fir family. The branches grow in horizontal stages, and the leaves, crowded closely together, curve upwards. It is said to grow to a height of two hundred feet, and to form vast forests on the mountains of North California. On his discovery of the "noble fir," Douglas remarks, "I spent three weeks in a forest composed of "this tree, and day by day could not cease to "admire it."

A. Nordmanniana.—This variety was discovered by Professor Nordmann in the Crimea. The leaves are of a deep shining green, and the white silvery lines very clearly defined. The leaves are longer and it is not so lofty; otherwise, it resembles the common fir, *A. pectinata.*

A. pinsapo comes from the mountains of Southern Spain. It is clothed all round the branches with short, stiff, pointed leaves, of a lighter green than those of other varieties, and thickly branched down to the very ground, the stem being often invisible. It appears to be the hardiest variety we have, and is the one most commonly met with.

Shrubland,
Suffolk.

DOUGLAS SPRUCE.

Rushmere,
Suffolk

NORWAY SPRUCE.

XXVI.

ABIETINEÆ.

THE SPRUCE.

PICEA.

The Norway or common spruce, *Picea excelsa*, is said to be the loftiest of all European trees, the silver fir, *Abies pectinata*, coming next to it. A native of the mountains of Northern and Central Europe, evidence points to the conclusion that it has been with us for several centuries, but the time of its introduction is not definitely known.

Like the larch, the spruce thrives best in a sheltered situation, on a loose moist soil, and never appears to be affected by frost. It blossoms in May and June. The red brown cones, which, are pendent, ripen in the autumn, and discharge their seed the following spring. The tree thus differs from the pine, in ripening its seeds within a year of blossoming.

The wood is much used in commerce, the small trees for scaffolding and ladders, the larger trees for general building purposes. It comes to this

country in great quantities from the Baltic ports under the name of "white deal."

Notwithstanding the perfect regularity of its straight and conical form, a well-grown spruce, with space to allow it to retain its luxuriant floating foliage down to the surface of the ground, is a beautiful object.

The spruces and the firs, with their small, simple, solitary leaves, descend from the ancient race of *Gymnosperms*, a group believed to have been "the most prominent of the flora of the "whole earth, for ages before the appearance of "the broad-leaved trees and the gaily flowering "herbs."

The black spruce, *P. nigra*, is a North American tree. It is very hardy and has a rich, dark, dense foliage. It is of much slower growth, and nothing approaching in size to the Norway spruce.

The Douglas spruce, *P. Douglasii*, frequently called the "Douglas fir," although it has the leaves and cones of the spruce, was brought to this country early in the Nineteenth Century. It is a fast-growing tree, and has deservedly gained great popularity. The leaves, bright green above and paler beneath, stand out and are longer than in the Norway spruce; in the latter, too, they are more compressed to the stem. Late frosts, after the buds of the Douglas

spruce have begun to burst, are liable to be very injurious, especially to young trees; and in low or exposed situations, it is more advisable to plant the Norway spruce. Besides its beauty, the wood of the Douglas spruce is highly esteemed. "Timber," referring to this tree, remarks: "In the Fifties, a cargo of Douglas "fir spars was sent to France, and since that "time Douglas fir has been the spar timber "*par excellence* of the world. The mast of the "American Cup defender 'Columbia' had a "Douglas fir spar. Each year has seen rapidly "increasing shipments of Douglas fir."

Another writer says: "It is found in immense "forests in the North-West part of America, and "at different elevations on the Rocky Mountains, "forming a dense little bush not a yard high at "the top of those mountains, but becoming larger "and more stately as it descends the sides, until "it finally develops into those mighty giants "which stand in the lower valleys at the base "of the same range, and along the banks of "the Columbia River. In the density of the "forests, and where the trees are relatively "close, the foliage is confined to a tuft at the "top, the trunk forming a cylindrical column "as straight as an arrow, and almost without "branches for two hundred feet." The lateral branches are destroyed by the exclusion of air,

and tall, clean, straight trees are produced. Thus the most valuable timber is provided by nature.

The flag staff in the Botanical Gardens at Kew is a single piece of Douglas spruce, one hundred and fifty nine feet long, which came from Vancouver Island in 1861.

LARCH.

Bentley,
Suffolk.

XXVII.

ABIETINEÆ.

LARICEÆ.

THE LARCH.

LARIX EUROPÆA.

A native of the Alps and distinctly a mountainous tree, the larch was introduced into Great Britain about the middle of the Eighteenth Century. Its value was quickly appreciated. During the last hundred years no tree has been more extensively planted in the North country and the hilly districts of the West. The larch grows to most perfection on slopes, and in valleys in a loose soil, and where its roots are kept cool but not in stagnant water. On exposed plains, the tree becomes stunted, and in hard gravel subsoils, a rot is liable to set in when the tree is from twenty to thirty years old. If this takes place, the tree should be felled, and, owing to its rapid growth, it should then be useful for many purposes.

Although light in weight, no wood used in this country will last longer in the ground, with the

exception of oak. For posts, rails, and fencing, it is better not to strip the bark, and it looks well left on.

The larch takes a pyramidal growth, which it retains with much regularity through life. The light branches, "for boughs it has none," spring horizontally from a reddish-grey scaly stem, and, as the tree grows older, they curve gracefully downwards at the extremities. The leaves, which unfold early in April, are in tufts, but single on the young shoots, like those of the cedar. The catkins appear soon after the leaves; the males are yellow, and the young cones a rosy-red, changing to brown. They stand erect on bent footstalks.

The larch is not a very long-lived tree, and we seldom see it more than forty or fifty feet high, but in favourable situations it is said to grow much larger. Drawn up closely together, the trees present the appearance of a mass of bare poles, with small conical heads; but, where allowed room, there is something very refreshing about a larch plantation in early spring, when the little, bright grassy-green leaves burst out from the delicate spray, and the air is full of its resinous fragrance.

The name Larch is said to be derived from the Celtic word, *lar*, fat, and was applied to this tree on account of the abundance of resin it

produces. The fallen leaves of the larch are considered an excellent fertiliser, and to greatly improve poor soils, in particular pasture.

The larch and the deciduous cypress are the only cone-bearing deciduous trees.

Ham, Surrey

JUNIPER.

Kew,
Surrey

ATLAS CEDAR.

Kew, Surrey

DEODAR

Kew,
Surrey,

CEDAR OF LEBANON.

XXVIII.

ABIETINEÆ.

LARICEÆ.

THE CEDAR.

CEDRUS.

The three cedars are so much alike in the construction of their leaves and organs that in all probability they are only varieties from one parent, and this is the view that was evidently taken by Sir Joseph Hooker. In growth they are easily distinguished. The cedar of Lebanon throws out rigid horizontal branches, slightly depressed at the ends, and the foliage is of a dark bluish green; the branches of the Deodar are drooping, the leading stem is deflected, and it is of a lighter green; and in the Atlas cedar, the branches ascend, while the general tint is of a greyish green.

The cedar produces its leaves in tufts and retains them for two years. The cones appear in August, and are erect on the upper sides of the leaves. Some botanists say that the cedar should be in the order of the silver fir. The leaves

resemble those of the larch, but the cones, which are more important, and the bark, are more like the fir.

C. Libani is believed to have been introduced about the end of the Seventeenth Century. The earliest records relating to it are to be found in the Bible, but doubts have been expressed of the cedar there referred to being the true cedar of Lebanon. In some instances, it would appear that the interpretation must be taken to mean "a fragrant smelling wood," but where the material is described as coming from the cedars of Lebanon, such as in the building of Solomon's temple, we see no reason to doubt the statement. It is urged that the wood is spongy, and unsuited for the purposes ascribed to it; but we have no knowledge of the quality of the cedar wood from Lebanon. We believe that none exists. From all accounts the district has been for many years denuded of cedars, with the exception of a few old relics. The wood of our home-grown article is not necessarily a true indication of the quality of the wood yielded by cedar trees which grew on their native soil. We generally find, for instance, that the wood of the Scotch pine, grown in England, is soft and white, whereas the same kind of pine wood that comes from Memel is hard and red.

We have no authentic knowledge of the

extreme age to which the cedar lives. It is said to have flourished on the banks of the brook Cedron in Judæa, from whence it takes its name.

There is something very grand in the solemnity and stateliness of a large cedar of Lebanon. Many tree lovers consider that it excels all other conifers, and there are certainly not many places of repute, with sufficient grounds, which are without a specimen.

The Deodar, *C. deodara*, is a very general favourite. The tree is said to grow "in India to "an enormous size, it being impossible to form "any conception of its character from the small "specimens now in England."

The Atlas or African cedar, *C. Atlantica*, is more uncommon. It is supposed to grow faster than either of the others, and to be better able to stand our Northern climate.

The wood used in the making of pencils, boats, and cigar boxes, comes from the American "red cedar." It is not really a cedar, but a juniper, *J. Virginiana*—quite hardy to our climate. It is an ornamental tree, with very small sharp-pointed leaves, drooping branches feathering to the ground, and a rich brown scaly bark.

Our subject was difficult to photograph, owing to its position close to the old orange houses at Ham.

IRISH YEW.

Buckminster,
Leicestershire.

Ipswich,
Suffolk

YEW.

XXIX.

TAXINEÆ.

THE YEW.

TAXUS BACCATA.

The history and associations of the yew give it an almost unique place among our native trees. The origin of the name is said to be from the Celtic word, *iw*, signifying verdure—an allusion to the yew being an evergreen. Its Latin apellation is doubtless derived from *taxus*, a bow, the wood of the yew having been the material employed in making the longbow—for centuries the formidable weapon with which our old English archers were so greatly renowned for their skill and prowess.

> "By shafts from bows of bending yew,
> In streams of crimson gore paid nature's due."

The importance of the yew for this purpose led to its protection, and formerly, no doubt, it was extensively grown; but when the bow was superseded by the firearm, its preservation was abandoned, and the yew fell out of favour until

attention was turned to planting it as an ornamental tree. It forms an erect tree of no great height, with numerous long-spreading branches close to the ground. The growth is slow, but a yew is believed to live to an extraordinary age, insomuch that the lapse of a century does not much affect a matured specimen. The wood is said to be more durable than that of any other tree.

The dark green leaves, about an inch long, are arranged in lateral rows, like a comb. One sex only is produced on an individual plant; the male flowers are in small yellow catkins, and the small green female flowers, which appear in the axils of the leaf stalks, develop into bright red berries about the size of a pea. The trunk is generally deeply grooved, and the thin reddish-brown bark has a disposition to peel. The poisonous properties of the foliage of the yew have been known from time immemorial, and are referred to by early Greek writers; the berries are believed not to be poisonous—at any rate, they are devoured with impunity by the blackbird and the missel-thrush.

The yew is a very hardy evergreen, and best suited by a strong soil. When pared for a few years, it will make a dense fence. The yew hedges in some of the old English gardens are very picturesque, and a venerable yew tree is an

interesting object from the fact that in all probability it is of great antiquity; but a growing yew has rather a gloomy look, and is not to our thinking nearly so attractive as a holly. Whether the old specimens we find by some of our churches were planted in the churchyards, or whether the yew groves were regarded as fitting places in which to build the churches, is not quite clear.

> "Beneath those rugged elms, that yew tree's shade,
> Where heaves the turf in many a mouldering heap,
> Each in his narrow cell securely laid,
> The rude forefathers of the hamlet sleep."
>
> *Gray.*

T. b. fastigiata.—This well known variety, the Irish yew, does not attain the size of much more than a shrub. The leaves are of a much deeper green than those of the common yew, and spring from all round the branches. The tree takes a peculiar cylindrical growth, with a disposition to widen and flatten at the top; in constitution it is quite as hardy as the common yew.

Kew, Surrey

SEMPERVIRENS.

WELLINGTONIA.

Ufford,
Suffolk

XXX.

TAXODINEÆ.

SEQUOIA.

The Wellingtonia, *S. gigantea*, or "the big tree," as it is called in the land of its birth, is a native of California, and flourishes singly and in groves along the Western slopes of the Sierra Nevada Mountains. Though not so tall as the eucalypts or gum trees of Tasmania, in height and girth combined it is believed to be the largest tree on the face of the earth.

American botanists, perhaps not unreasonably, resent, as they say, "a British name, however "meritoriously honoured, being applied to the "most remarkable and gigantic vegetable wonder "which is indigenous to their country—the only "locality in the world where it is found."

S. gigantea is said to attain a great age. The specimens we have over here certainly do not look like coming to any particular size, but it probably takes many generations for a foreign tree to acclimatise itself properly in this country,

and there is not a *sequoia* in Great Britain that has been planted fifty years; if, as stated, the seeds were first brought to this country in 1853.

The cones are solitary, the bark thick and stringy, and the foliage takes rather after the cypress and some of the junipers.

"The big tree's" sister, "the redwood," *S. sempervirens*, grows along the sides of the ridges near the coast from Northern California to the South of San Francisco. "Timber" describing the wonderful forests of "the redwood belt" remarks: "Four acres of redwood are known to "have cut 1,000,000 feet b.m. (*i.e.*, the volume "of a board one inch thick and one square "foot in area). This is not really so remark- "able when you realise that these trees often "contain 10,000 feet b.m. Their tall straight "columnar trunks, limbless for 200 feet, stand "so closely together that they seem to form a "wall of cinnamon-brown bark, while their short "spreading top branches seem to support the "firmament itself. The Douglas fir does not "have such a large maximum yield per acre, but "its average is not much less."

The flowers, cones, and bark of the two varieties are much alike, and the wood is said to be of much the same character; but we have only seen that of *S. gigantea*, and this is so very light and brittle that it seems astonishing

how so large a tree can stand so well. Its stability can only be accounted for by the thickness and strength of the bark.

In outward appearance the two trees are quite different. *S. sempervirens* is the more picturesque. Its dark, shining green leaves are spread out flat and its outline is more broken; but it has not become so popular in this country as *S. gigantea* owing to its comparative tenderness.

Syon,
Middlesex.

DECIDUOUS CYPRESS.

XXXI.

TAXODINEÆ.

THE DECIDUOUS CYPRESS.

TAXODIUM DISTICHUM.

Closely related to the sequoias, which occupy the Western slopes of the Southern States, the deciduous cypress is distributed over the Eastern side, extending as far as the Mississippi. Being a semi-aquatic tree it is said to flourish on the banks and among the swamps of that river, attaining a height of upwards of a hundred feet, with a stem nearly equal in thickness to *S. gigantea*. In wet situations, the roots take a peculiar growth, rising a foot, and even more, straight out of the ground for several yards from the tree. It is supposed that they come out to get air.

The leaves, of a bright green, turning red in the autumn, are flat, and arranged as in the yew, hence its botanical name from *taxus*, the yew, and *eidos*, like.

The branches are stiff, and disposed to rise; the branchlets slender and tapering at the ends.

The subject of our photograph stands in moist ground by the lake at Syon. There are larger specimens on the domain but the one we selected shows the remarkable outcoming of the roots, to which allusion has been made, when the tree grows in swamps.